THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 47. NOVEMBER 21, 1942 VOL. 54.

The Use of Br. abortus Vaccine*

A. D. McEWEN

VETERINARY DEPARTMENT, SOUTH-EASTERN AGRICULTURAL COLLEGE, WYE, ASHFORD, KENT

It is comparatively simple to gauge the value of field immunisation or vaccination against an acute bacterial disease that has a short incubation period, such as anthrax or black quarter: it is much more difficult to assess the value of vaccination in the prevention of diseases that may not manifest themselves clinically until a long and variable period after infection has occurred. Tuberculosis and contagious abortion in cattle are two such diseases. In both these diseases, it may be shown that vaccination with either killed or attenuated living cultures of the causal organisms confers some protection against experimental infection, but when vaccination experiments are taken into the field, many complications arise that make it difficult to decide whether vaccination has been beneficial. Among these complications are (1) the difficulty of excluding infection in some animals before vaccination, (2) the long period that must elapse between vaccination and the collection of data upon its effects, and (3) the impracticability of keeping control animals in long-term field trials. During the period of the field trial, an unfortunately high proportion of our efforts will be wasted. Among the causes of this wastage are changes of ownership or changes of managership, resulting in the dispersal by sale of herds; ineffective co-operation at the farm, leading to failure to report relevant happenings in the herd—this is particularly liable to happen during a period when the disease appears to be quiescent; the removal of animals from herds for various causes other than infection with the disease that is under study; and, when the experiment is a co-operative one among a number of veterinary surgeons, the inability of some to give effective co-operation further reduces the proportions of the field trials.

In 1942 there are still no completed records of reasonably extensive field vaccination trials against contagious abortion in this country, despite the fact that vaccination has been widely practised for many years and that, during this time, there has been conflict of opinion regarding its value.

Prophylactic vaccination against contagious abortion was based on the results of experimentation, and this experimental foundation has helped it to weather the storm of adverse criticism that reached a climax ten or twelve years ago, when to suggest in certain circles that vaccination was not harmful was to invite condemnation. To-day, fashion has gone full cycle and vaccination is being actively advocated, at any rate in this country and in the U.S.A. In Britain vaccination is about to be practised more extensively than ever before; shall we, at the end of four, six or ten years, be able to show what it has or has not accomplished in the control of the disease? Well-conducted, large-scale field trials will be necessary if we are to obtain this information. Some of you know that a number of veterinary surgeons are collaborating with my laboratory in the collection of data on field vaccination trials with a vaccine which, until recently, was prepared only at my laboratory, and it was only used on herds where the owners agreed to follow a definite plan and to supply information at regular intervals on the happenings in their herds, which information, in due time, would show whether vaccination had been effective in the control of contagious abortion and whether, with the control of the disease, there was also a reduction in the amount of sterility in the herds. Now that the vaccine is prepared elsewhere and may be obtained without owners having to fulfil any obligations, some of the owners who were co-operating in our scheme have insisted on their veterinary surgeons using the vaccine but have stopped supplying further information. This aggravates the inevitable processes of attrition I have already sketched and still further reduces the volume of the data we had hoped to collect.

It is not, however, the vaccine that I was personally responsible for that matters most at the present time, because the vaccine which will be generally used under the Ministry's Scheme for the Control of Diseases of Dairy Cattle is prepared from the widely popularised American Strain of *Br. abortus* S.19, and vaccine from this strain is now on sale and advertised by several laboratories in England. Indeed, we appear to have entered a period when this vaccine will be used on a very extensive scale, in the hope of all, and in the belief of many, that it will effectively control the disease. But, if the vaccine does not fulfil expectations, years may pass before its shortcomings are fully realised.

Contagious abortion is a disease that provides conditions favourable for the continued use of a vaccine of little value or, indeed, for the alleged cure that is of no value. As it is not possible to forecast whether abortions will or will not occur in a herd, and because naturally acquired immunity and other factors about which we have little knowledge, probably play a very important part in the incidence of abortion, ineffective vaccination may receive credit it in no way deserves. The dice are not, however, always loaded in favour of a vaccine. They may be weighted against a vaccine, as when an infected animal destined to abort because of a pre-vaccination infection, is vaccinated. A vaccine may, therefore, be condemned where condemnation is undeserved.

Without well regulated field tests confusion will arise. One man will say that he had a herd vaccinated and the results were excellent, there being practically no more abortions; another will state that, after vaccination, some of the vaccinated cattle aborted and that vaccination was no good; while a third may have some apparent success and some apparent failures and will be left bewildered. Without carefully conducted large-scale field trials, hope and expectancy may give place to scepticism and bewilderment.

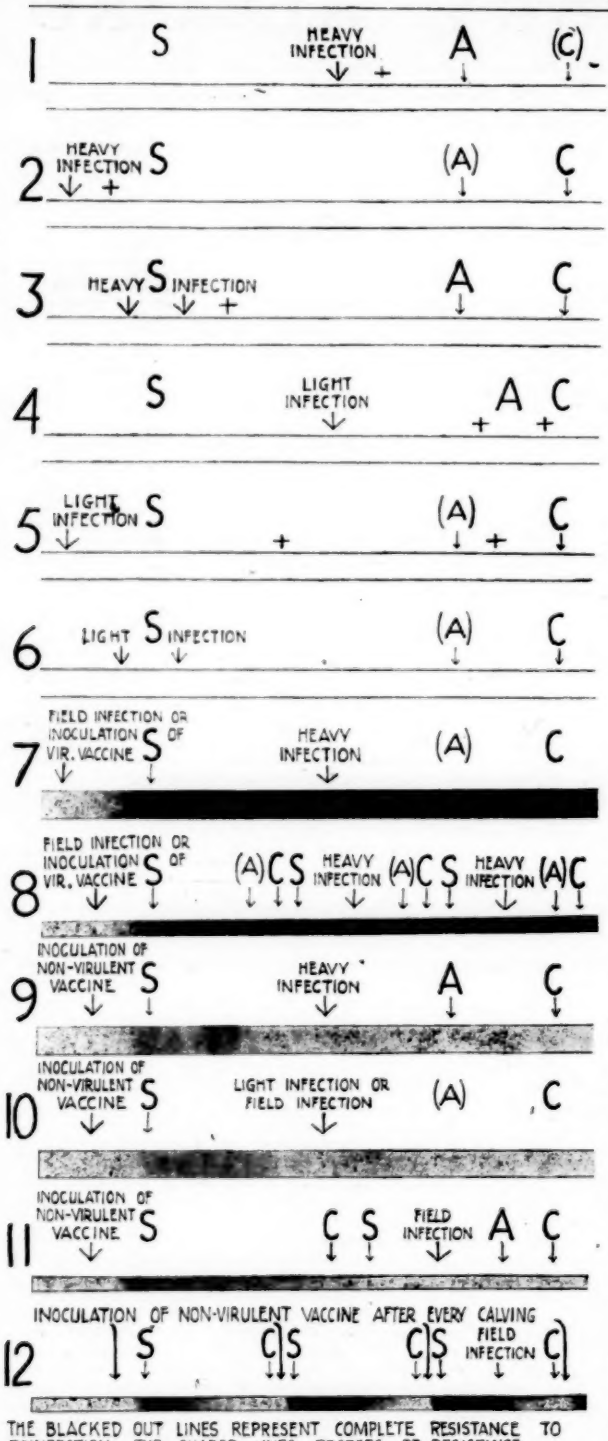
There is one point that I should like to emphasise about Strain 19, from which the standard vaccine is prepared. Strain 19 is of very reduced virulence. In the U.S.A. this vaccine is used officially for the inoculation of calves and one inoculation is given in the hope that it will protect the animal for life. But it has still to be proved that the immunity acquired by the calf is effective into the animal's second and third and subsequent pregnancies. The Ministry's Memorandum, No. C.S.2, says of the vaccine, "The vaccine which will be used as a standard vaccine is administered in a single dose and has been widely and successfully used for the immunisation of calves."

Probably most of us interpret this as meaning that a single inoculation given to the calf will immunise the animal for the rest of its life. But the Ministry's more recently received memorandum, No. C.S.1, states about No. 1 (Standard Vaccine), "It has not been the practice to revaccinate after each pregnancy animals which have been vaccinated with No. 1 vaccine, but revaccination may be carried out in any herd where the veterinary surgeon, for any reason, considers it desirable."

Is the standard vaccine perhaps not quite so wonderful? The thought is disturbing because repeated inoculations after pregnancies will mean positive reactors to the agglutination test. Perhaps the clients whose herds we are concerned about do not want reacting animals, so we shall have to hope the immunity the calves received will last them the rest of their lives. But if the immunity does not last into the second and third pregnancies, it will take several years before this is found out, and if, in three or four years time, the cows start aborting, what will our reactions be?

But to revert to the question of the virulence of the Strain 19, it is now claimed that the subcutaneous inoculation of this vaccine into pregnant animals does not cause abortion or infection, and that guinea-pigs inoculated with cultures of Strain 19 do not show splenic lesions. These are points which show that the vaccine is low in virulence. But where can we find any evidence that will enable us to say that the vaccine is to-day of such and such a definite positive degree of virulence so that now or in the future we may check up on our cultures of Strain 19 and make certain they have not lost this positive degree of virulence? That evidence I have failed to find in the published records I have seen from the U.S.A. These records give me no grounds for believing that the virulence of Strain 19 has remained stationary during the many years since it was stated to be of reduced virulence and was first used in vaccination experiments. We may accept that it has not become more virulent, but there is nothing to show that it has not become less virulent. If it can be accepted that the immunity stimulated by a living *Br. abortus* vaccine is correlated with the degree of virulence of the live organisms in the vaccine, it would be unwise to accept the results of vaccination experiments with

*Address to the North of England Division, N.V.M.A., on the occasion of the meeting held at Darlington, July 30th, 1942.



THE BLACKED OUT LINES REPRESENT COMPLETE RESISTANCE TO REINFECTION, THE SHADED LINES DEGREES OF RESISTANCE.
FIGS. 7 AND 8 REPRESENT ANIMALS IMMUNE TO REINFECTION, THEIR IMMUNITY IS PERMANENT.
FIGS. 9,10,11 AND 12 REPRESENT ANIMALS WITH SOME IMMUNITY THIS RELATIVE IMMUNITY IS NOT PERMANENT AND SHOULD BE RENEWED BY REVACCINATION AFTER EVERY CALVING.
S = SERVICE, A = ABORTION, C = CALVING, (A) = SOME ANIMALS MAY ABORT, (C) = SOME ANIMALS MAY CALVE, + = APPEARANCE OF AGGLUTININS.

Strain 19 made some years ago as a true indication of the immunity that might be obtained with vaccine prepared from Strain 19 at the present time.

May I now present to you, by the aid of simple diagrams, some of the things we know and some of the guesses we can attempt about contagious abortion.

The first figure shows what actually does happen when a non-infected bovine, at about the middle of the gestation period, receives a heavy infection with *Br. abortus*. Soon after infection, a positive reaction occurs in the great majority of the cattle and most of the animals abort. But a few may calve at the normal time.

In Figure 2, the heavy infection is represented as taking place before service. This is, of course, what happens when animals are inoculated with a virulent vaccine before service. In this instance, the majority of the animals calve normally, but unfortunately a number do abort. All of the above results have been obtained from normal cattle infected experimentally some weeks before service and from normal animals infected when they were about five months pregnant, and we might conclude that when a very heavy infection occurs under natural conditions at these particular times, the happenings will be similar.

But when a heavy infection occurs at about the time of service, or shortly afterwards, we have less experimental evidence to guide us, and our predictions of what will happen approximate more nearly to pure guesses. Figure 3 shows the guess I have made. Possibly some animals will abort and some calve, but it is impossible to predict which group will contain the majority of the animals.

Figure 4 represents animals comparable to those shown in Figure 1, but, in this case, the given infection is lighter. There will be many more calvings than when the infection was heavy; indeed, the calvings may be in the majority. It should be noted that a positive agglutination reaction may not develop until a long time after the infection occurred.

When a light infection occurs before service, we have little evidence to guide us, but it might be considered probable that, as a heavy infection at this time does not produce many abortions, practically none would occur when the infection was light. This is, however, a risky conclusion to draw. Probably most field infections are "light" rather than "heavy," and it is probable that, after infection, a positive agglutination reaction usually takes several weeks or sometimes even months to develop. We know, from experience, that the prognosis is not favourable if a positive reaction develops while an animal is pregnant. Abortion is liable to follow. In many such cases there is reason to suspect that infection may have occurred before the onset of pregnancy. It would, therefore, be wiser to say that, when the infection is light and occurs before service, we do not know what will happen, but we would not be unduly disappointed if the infection produced abortion in a considerable number of the cattle.

Again, if the light infection had occurred at about the time of service, Figure 6, we should not be unduly disappointed if we were to learn that an appreciable number of animals had aborted.

Let us now consider the question of immunity and infection. Figure 7 represents what may happen to animals that were naturally infected with a heavy infection or were inoculated with virulent live vaccine before service when they are again exposed to infection. I believe these animals will possess a very high degree of resistance to reinfection, a resistance which will protect them against any natural exposure to infection. If these animals are exposed to infection, it will have no effect upon their behaviour: they will react as did the animals in Figure 2. The majority will calve, but there will be a few abortions.

Figure 8 shows infected animals over a longer period covered by several pregnancies. At each pregnancy the majority of the animals calve normally, but a few may abort. Exposure to further infection during this time would make no difference to the course of events.

When vaccination is practised with a vaccine of reduced virulence, the immunity is never of a high order. Let us assume that vaccination of itself is not dangerous and does not cause abortion or infection. Vaccination will not protect all animals when they are exposed to a heavy experimental infection during pregnancy. It may, however, be expected to increase the number of calves that will be born alive. These happenings are represented in Figure 9.

The relative immunity of the animals may be sufficient to afford a serviceable protection against light experimental infection and also against ordinary field exposure to infection as is shown in Figure 10.

When the duration of the immunity stimulated by a vaccine of reduced virulence is considered, it is found that there is great poverty of experimental evidence to guide us, but the little there is

does not suggest that the immunity will persist undiminished over an indefinite length of time. There are very few experiments from which to glean information and some that have been submitted are of little value—as, for example, when vaccinated animals were exposed to infection at the first pregnancy after vaccination and again exposed during the second pregnancy. Any resistance to the second exposure should not be credited to immunity persisting from vaccination, as it may have been due to a stimulus the immunity received from the exposure to infection during the first pregnancy. In the present state of ignorance, it appears reasonable to revaccinate cattle after each pregnancy in the hope that the immunity will be effectively reinforced and maintained at a serviceable level. Figures 11 and 12 illustrate what may happen when a single inoculation is given and when repeated inoculations of vaccine are made.

From these illustrations it is evident that there are serious limitations to our knowledge of contagious abortion. Information could be extended by careful experimentation on cattle. This is slow and expensive work and has never been undertaken on a sufficient scale and with necessary thoroughness. Most of the experiments on large animals have been designed to throw information on some particular method of vaccination and few have been primarily concerned with the effects of infection of different degrees of severity occurring at different periods during the pregnant and the non-pregnant state respectively. To have a better knowledge on these latter points would be valuable, as it might lead to better methods of immunisation. If we have to depend on using living cultures to stimulate immunity, it seems unlikely that we are going to get the best results from one vaccine of one degree of virulence. Vaccines of different degrees of virulence might be used: the more virulent vaccine to be used when the resistance of animals is at its highest; or primary vaccination with the least virulent vaccine might be followed by an inoculation with a more virulent vaccine, the latter being given at those periods when resistance is naturally high.

Calfhood vaccination is much to the fore these days and Strain 19 is widely used for the vaccination of calves. In field vaccination work on calves, what might be the results during the animal's second pregnancy if calves were vaccinated and not exposed to infection until they entered the milking herd, having themselves had their first calf; and how might these results compare with those obtained from animals vaccinated as calves and exposed to infection as they grow up and throughout their first pregnancy? It is possible that two quite different sets of results might be obtained. Indeed, I think it is very probable.

It should not be assumed that results obtained in one place, under certain conditions of animal husbandry, will be repeated in another place where the animal husbandry may be different. This is especially true with regard to calfhood vaccination. It would be well to maintain a critical outlook on questions of immunity and immunisation against contagious abortion.

Discussion

Mr. G. M. G. Oliver thanked Dr. McEwen for his interesting paper, which had caused him to think hard about many points. He would like to say that he was under the impression that according to instructions from the Ministry of Agriculture, vaccination must be confined to cows which are non-reactors. Some farmers sought advice in old-standing infections and he would like to ask what could be done for these animals. Dr. McEwen said that, under the Ministry's scheme, both reactors and non-reactors would be vaccinated. There was no suggestion that all the cattle in the herds coming under the scheme should be blood tested and vaccination confined to the non-reactors. He believed that the vaccination of infected animals did no good and, if animals that had aborted were vaccinated and then carried their calves, vaccination did not deserve the credit. The infected guinea-pig was completely resistant to reinfection, even by the inoculation of millions of infected doses of *Br. abortus*, and Dr. McEwen thought that infected cattle would behave in the same way and that the tissues of an infected host were unsuitable soil for the establishment of a fresh infection. If a fresh infection gained entrance to the body, the bacteria were rapidly killed off. There was no reason to believe that vaccination or reinfection enabled an infected animal to overcome the original infection. Therefore, the vaccination of infected animals added nothing to the animals' ability to withstand new infection as this ability was already perfect, nor did it influence the infection the animals already had. Accordingly, vaccination of infected animals was worthless and, by practising vaccination of infected stock, thinking or hoping it might be beneficial, we continued to delude ourselves.

Mr. J. D. Peele said he would like to know whether cows, vaccinated with the standard vaccines, were infective to other clean cows and, if so, for how long. Also, how soon after calving should revaccination take place, and did the rules applying to the standard vaccine also apply to vaccine No. 2? Mr. Peele also referred to allegations that sterility followed the use of virulent abortion vaccine and asked whether the standard vaccines might cause sterility. Dr. McEwen, replying, said that when vaccination with either of the standard vaccines was confined to non-pregnant cattle, these cattle were not infected by vaccination either the uterus or the udder. As there appeared to be no channel by which the organisms inoculated into the cattle could escape from their bodies, he was satisfied that there was no danger from the point of view of contact infection. With regard to No. 2 Vaccine, they revaccinated cows any time from four to five days after calving, provided the animals were in normal health, and he would not hesitate to do the same with No. 1 vaccine. There were differences of opinion regarding the effect of vaccination on sterility but he doubted whether vaccination had anything to do with causing sterility. The data they were collecting from the herds inoculated with Vaccine No. 2 showed no evidence that vaccination had any adverse effect on breeding. In many herds it was clear that abortion infection had nothing to do with the sterility affecting the animals.

Mr. T. M. Mitchell remarked that there were many points about contagious abortion upon which most practitioners had been completely in the dark, and Dr. McEwen had done much that afternoon to throw light on the problem. Mr. Mitchell thought that the Ministry were at fault in not keeping proper records of the effect of *Br. abortus* vaccine, which they had prepared and distributed for many years. In all probability, many vaccinated and immune animals became carriers of a fully virulent organism capable of handing on the infection to other cattle. He was very glad to hear the speaker's opinion on the question of revaccination of reactors. He had frequently noticed that, when infected animals were vaccinated, they became emaciated and he would like to ask whether any reason could be given to account for this. Mr. Mitchell suggested that the more virulent the vaccine used, the higher would be the resultant immunity, and if this were so would it not be a good reason for using a fully virulent vaccine for the inoculation of calves? Dr. McEwen, replying, said that the only suggestion that he could offer on Mr. Mitchell's most interesting observation on the effects of vaccination on infected cattle was that the cattle were sensitised or allergic to the inoculation of the abortion bacillus and, because of this sensitivity, they were injured when inoculated with large numbers of *Br. abortus*. It was generally accepted that gross injury and destruction of tissue in tuberculosis was due to the sensitivity of the tissues of infected animals to the protein of the tubercle bacillus and, just as a tuberculous guinea-pig is killed by the inoculation of tuberculin or dead tubercle bacilli, so a guinea-pig infected with *Br. abortus* is killed by the inoculation of culture of that organism which produces no obvious disturbance in the healthy and normal animal. Dr. McEwen agreed that it might be better to use a virulent vaccine for the inoculation of calves and, at present, they were using such a vaccine for animals six to nine months of age in heavily infected herds that were not tuberculin tested.

Mr. F. J. L. Croudace asked how long after vaccination it would take for the agglutinins to disappear from the blood, as this was an important point in the case of animals being sold for export. The reply was that, in the case of calves inoculated with No. 1 vaccine, the agglutination reaction might persist for some months and the older the calf or heifer at the time of vaccination, the longer would the reaction tend to persist. Adult cattle inoculated with this vaccine would probably continue to give a reaction for lengthy periods of time. On the other hand, no reaction whatsoever was caused in any animal, whether a calf or an adult, by the inoculation of No. 2 vaccine. Multiple inoculations of this vaccine produced no reaction to the blood test.

Mr. W. A. Campbell stated that he thoroughly agreed with Dr. McEwen in stating that vaccination against abortion does not produce sterility. In his experience, vaccination was nearly 100 per cent. effective in preventing abortion. He had evidence from a herd where vaccination was started 17 years ago, to show that heifers which were inoculated with a virulent vaccine when between 10 and 14 months old remained immune to the disease all their lives. One great trouble to-day was the difficulty of getting maiden heifers in calf, and many of these animals were from herds which are not affected with contagious abortion. Dr. McEwen, replying, said that it would be most interesting to know the result of an agglutination test on the herd Mr. Campbell had so successfully immunised. Probably most of the older animals were now non-reactors to the test. Nevertheless, they might well be immune because there was no necessary correlation between immunity and a positive reaction. Mr. Campbell's evidence supported Mr. Mitchell's suggestion that a more virulent vaccine than No. 1 vaccine might be a better vaccine for young stock.

CLINICAL COMMUNICATION

Stilboestrol in Pyometra of the Bitch

MILLER WATSON, M.R.C.V.S.
Glasgow

Subject.—A 14-year-old Irish terrier bitch.

History.—For some time the bitch had been in poor condition and recently the abdomen had become very swollen. She had never been bred from and was last in season nine months previously.

Physical Examination.—The animal was fairly bright and the temperature was normal. The abdomen was greatly distended and, on palpation, the greatly enlarged uterine horns could be felt. The stomach was also distended and the owner confirmed that the animal had been flatulent for some time. There had been no vomiting and the animal voided faeces and urine normally. There was no discharge from the vulva.

Diagnosis.—Pyometra with related digestive disturbance causing flatulence.

Prognosis.—Guarded, in view of the animal's age.

Treatment.—The bitch was given 0·5 mgm. stilboestrol dipropionate intramuscularly. After the lapse of 48 hours there was no sign of the onset of oestrus and no discharge from the vulva. A further dose of 1 mgm. stilboestrol was administered. Twenty-four hours later it was reported that there was a slight discharge from the vulva. Another dose of 1 mgm. stilboestrol was given. On the following day there was a free discharge from the vulva and the uterus was much reduced in size. The discharge continued for ten days, the abdomen gradually returned to a normal volume and the owner reported that the animal had ceased passing flatus. The general condition of the animal improved markedly, the pulse and heart sounds in particular showing great improvement. Oestrus had not appeared within one month of the treatment.

Remarks.—The discharge from the uterus was of the so-called "sterile" type. The action of the stilboestrol appeared to be gradual, the amount of discharge only reaching a peak after the third dose had been given.

ABSTRACTS

[VITAMIN A DEFICIENCIES IN RUMINANTS. Schmidt, H. (1941.) *Amer. J. vet. Res.* **2**. 373-389.]

Studies on vitamin A deficiency in cattle kept under commercial conditions and also in experimental animals confirm the finding of numerous other workers that the first indication of vitamin A depletion in cattle is night blindness. As the depletion of vitamin A reserves becomes more complete this is followed by corneal opacity and ulceration. Swelling of the legs, sometimes quite marked and reaching from the hoof to the thigh and shoulder, occurred, and remained for weeks and then slowly subsided, only to return again later. Other symptoms in the syndrome were convulsions, nasal discharge, unpliable skin, failure of reproduction, panting and drooling in hot weather, and loss in weight. If the deficiency was severe enough, it terminated in death.

The amount of carotene required by cattle for continued maintenance of life as determined by the author was above 450 γ per 100 lb. live weight. For production of meat or milk, however, the requirement was much higher. Thus five Hereford steers placed on this amount of carotene became fat after 145 to 993 days on this level and yet all five succumbed to a vitamin A deficiency. The requirements of dairy cattle are shown to be high. Thus in Jersey cows fed at a level of 1,000 γ carotene, night blindness was manifested and at carotene levels of between 1,000 γ and 2,500 γ there was failure in reproduction and lactation was much below normal.

The survival period of mature sheep on a carotene-free ration varied from 273 to 779 days, and of mature goats from 351 to more than 787 days. In these species the clinical picture of vitamin A deficiency varied somewhat from that in cattle. Thus, frequently a loss of appetite, sometimes lasting for several weeks, a loss in weight with an unthrifty, wretched appearance and night blindness, were the only symptoms that could be observed. In others a profuse nasal discharge in the form of thick, tenacious strands, or in still others an anaemia developed in addition to the symptoms already mentioned. Opacity of the cornea was not a constant lesion and swellings were never observed. Of 14 castrated yearly male goats on a vitamin A-free diet, five developed uroliths and twelve suffered from urethral occlusion one or more times, with five dying from a ruptured urinary bladder. Similar findings were recorded in goats getting up to 3,500 γ carotene. N. J. S.

* * * * *

[TWO ANATOMICAL FEATURES OF CLINICAL IMPORTANCE IN THE VULVO-VAGINAL TRACT OF THE BOVINE. Scorgie, N. J., and Ottaway, C. W. (1942.) *Vet. J.* **98**. 134-138.]

This article commences with a clear, concise description of the gross anatomy of the visible mucous membrane of the vulvo-vaginal tract and its associated structures. From original observations on dissected specimens it is stated that the ducts of the glands of Bartholin vary in length from ¼ to 1¾ inches, and mention is made of a cystic condition of these glands which is, however, of little importance. Observations were also made on the canals of Gärtner; their presence on one or both sides is irregular. The longest canal of Gärtner measured was 8 inches in length.

The features of clinical importance are:—

1. Circular or annular folds in the bovine vagina of which four or six are usually present. They are not as numerous in maiden heifers and are caused by the presence under the mucous membrane of thin circular bands of smooth muscle with a marked power of constriction. Thus, if a speculum is used which is shorter than the vulvo-vaginal tract, one of these folds may be mistaken for the os uteri. However, if the speculum is left in place, complete vaginal dilatation will soon occur.

2. The occurrence of a vertical band of tissue in the vagina. Two cases exhibiting this condition are described. The band, 1 inch thick, passed vertically across the os uteri, being attached to the extremity of the cervix. The band, until cut, proved an obstacle to parturition. Williams's theory is quoted, that such a band is due to persistence of the medial wall of the Müllerian ducts at the vaginal end of the cervix. Both cases were by the same bull out of unrelated cows, and it is suggested that the condition may be transmitted as a recessive character. J. W. D.

Weekly Wisdom

"*Another thing which I have found during the past seven years is the enormous importance of the directorship of institutes. You can walk into some institutes and find that the atmosphere is dull, and you can walk into others and not be there long before you feel that you are up against something which is really alive, there is team work going on, and the institute is forging ahead with enthusiasm. Nearly always that feeling emanates from the personality of the director of the institute, and I cannot say too much in praise of the wonderful work which is being done by many of our directors.*"—Sir Merrik R. Burrell, bt., c.b.e., *J. Farmers' Club*, 1928, Feb., p. 64.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Nov. 21st.—West Sussex W.A.E.C. Milk Production Demonstration at Chichester, 2 p.m.

Nov. 26th.—Meeting of South Eastern Division, N.V.M.A., at Maidstone, 2 p.m.

Nov. 26th.—N.V.M.A. Committee Meetings, 36, Gordon Square, W.C.1. Joint Veterinary Officers and Public Health and Parliamentary Committee, 11.15 a.m.; Finance and General Purposes Committee, 1.30 p.m.

Nov. 27th.—Meeting of Council, N.V.M.A., Connaught Rooms, Great Queen Street, Kingsway, W.C.2, 11.30 a.m.

Nov. 27th.—Meeting of the Royal Counties Division, N.V.M.A., at Oxford, 2 p.m.

Dec. 2nd.—Special Meeting of the Southern Counties Division, N.V.M.A., at the Polyglot Hotel, Southampton, 2.30 p.m.

* * * * *

N.V.M.A. Council and Committee Meetings

Attention is drawn to the alteration made in the time of the meeting of the Finance and General Purposes Committee from that published in our last issue, *viz.*, from 2 p.m. to 1.30 p.m.; also to the fact that the meeting of the joint Veterinary Officers and Public Health and Parliamentary Committees has been arranged for 11.15 a.m. on November 26th.

* * * * *

Retention of Female Employees by Veterinary Surgeons

The N.V.M.A. recently addressed a further letter to the Ministry of Labour and National Service seeking their assistance in making it possible for veterinary surgeons to retain their unqualified employees, or in cases where further deferment could not be granted, in helping members to obtain the services of other suitable persons. The following reply has been received:—

Ministry of Labour and National Service
15, Portman Square,
London, W.1.
November 13th, 1942.

Sir,—I am directed to refer to your letter of September 30th regarding the call-up of women employed by veterinary surgeons.

In so far as your letter is intended to refer to employees of veterinary surgeons who are engaged substantially on domestic duties in the home of the veterinary surgeon and not solely in connection with the veterinary surgeon's professional interests, there are already arrangements whereby the fullest consideration is given to each individual case. The procedure is as follows:—

Where the woman in question is in one of the younger age groups at present being dealt with under the National Service Acts, her employer may make application for deferment of her call-up and the District Man Power Board, which is the body which deals with applications for deferment, will take into account any representations by the employer as to the extent to which the woman is essential to the conduct of his business. In view of the urgent demands for women for the Services and war industry such applications will, however, be considered in the light of the general direction that, save in exceptional circumstances deferments in respect of women in the younger age groups who are being called up under the National Service Acts should at the most be granted for short periods to enable alternative arrangements to be made.

In respect of older women being dealt with under the Registration for Employment Order, withdrawal for transfer to the Services or war industry would only be effected after the matter had been referred for independent advice to a Women's Advisory Panel, before whom the employer can attend and explain all the circumstances.

With regard to the filling of vacancies in the households of veterinary surgeons, it is regretted that the stringent supply position does not enable the Department to make any special arrangements. Local Officers of the Ministry can only do their best to meet demands upon them with due regard to the extent of the supply and the priority of demand in the area. As you are doubtless aware, women subject to the Registration for Employment Order are not directed to employment in private houses.

I am to add that the procedure referred to in the third and fifth paragraphs of this letter may also be regarded as indicating the position under the National Service Acts and the Registration for

Employment Order of women employed as whole-time clerical workers by veterinary surgeons. In cases of proposed withdrawals of women who come within the scope of the Registration for Employment Order, however, any representations by employers for the retention of clerical workers will normally be considered by the Local Office of this Department and not by the District Man Power Board.

I am, Sir,
Your obedient Servant,
G. Ball.

* * * * *

Farm Livestock Emergency Service

Compensation for Personnel Injured on Duty

The position under the Personal Injuries (Civilian) Scheme, 1941, of Animal Stewards and other personnel of the Farm Livestock Emergency Service has been under discussion with the Ministry of Pensions, who have ruled that members of the Service cannot be treated as members of a Civil Defence organisation for the purposes of the scheme. It follows from this that any injuries sustained by Animal Stewards or other members of the Service will be treated as 'war injuries' and not 'war service injuries.'

A war injury is, broadly speaking, a physical injury due to war-like operations. War injuries can thus be sustained on or off duty, at work or at home, in a public or private shelter, in the streets, or at a place of entertainment. The Ministry of Pensions have agreed to recognise as 'war injuries' any injury caused by an animal which has been hurt, or was infuriated, or panic-stricken, or contaminated by gas, as a result of enemy action, or our own action in combating the enemy. Similarly, they are prepared to recognise injuries caused to Animal Stewards or Veterinary Officers driving into obstructions, such as bomb craters, resulting directly from enemy action.

Persons who are permitted or encouraged to continue at work after an alert or raid spotters' warning will not, by so doing, prejudice their claim to compensation for war injuries.

So far as compensation under the Scheme is concerned, the fact that an Animal Steward who becomes a casualty will be treated by the Ministry of Pensions as having sustained a war injury will not, in the majority of cases, result in any financial loss compared with the position had his disablement been treated as a war service injury. This is due to the fact that F.L.E.S. workers (Veterinary surgeons, farmers or farm hands, and slaughtermen) will generally be gainfully occupied when carrying out their duties for the Service. The following table, which sets out the weekly rates of injury allowance to persons who are over 18 years of age, brings out this point clearly.

Class of Injury	Married male persons		Unmarried male persons		Female Persons	
	Not in hospital	In hospital	Not in hospital	In hospital	Not in hospital	In hospital
(a) War Service injuries; war injuries sustained by gainfully occupied persons	35/-	35/-	35/-	*24/6	28/-	*17/6
(b) War injuries sustained by non-gainfully occupied persons	21/-	10/6	21/-	10/6	16/4	†9/4

Notes

(1) In the case of persons under class (*a*) of the table, additional allowances are payable in respect of eligible children at the rate of 4s. for each of the first two and 3s. for each of the others. These are children born before, or within nine months after, the date of injury. An allowance for a child normally ceases at the age of 15, but if the child is then at school, the allowance may be continued up to the date of leaving school, or to July 31st next following the sixteenth birthday, whichever is the earlier.

(2) The rates marked * may be increased to 35s. and 28s. respectively if the injured person is maintaining in his or her home a wholly dependant relative.

(3) The rate of 9s. 4d. (marked †) may be raised to 16s. 4d. in the case of a widow with a dependant child in her home.

It is suggested that any Animal Steward or other personnel who would like further information on this subject should get into touch with the nearest office of the Assistance Board, the address of which may be obtained from any Post Office.

PERSONAL

Dr. A. D. McEwen's Moredun Institute Appointment

The veterinary profession in general will be interested to learn that Dr. A. D. McEwen has received appointment as Chief Bacteriologist, Moredun Institute, Animal Diseases Research Association, Edinburgh.

Soon after qualifying at the Royal (Dick) Veterinary College in 1922, Dr. McEwen proceeded to South Africa as Research Officer in the Department of Veterinary Education and Research for the Union. In 1925 he joined the staff of the Research Institute in Animal Pathology, London, under the direction of Sir John McFadyean, and the next year became Senior Research Officer there. In 1929 he accepted the post of Head of the Veterinary Department and Veterinary Advisory Officer of the South-Eastern Agricultural College, Wye.

Dr. McEwen's career has been outstanding in research achievement. His investigations into "struck" in sheep on the Romney Marsh proved that disease to result from an alimentary infection with *Cl. welchii*, type C; this organism was first isolated by McEwen, but ultimately it became realised that the work was of world-wide importance, in that it demonstrated that sheep were subject to entero-toxaemia, and a new and, economically, very important field of sheep disease research was thus made accessible. The disease locally known as "gangrene" proved to be due to infection with *Cl. chauvoei*, and for this and also for "struck" he evolved successful specific methods of preventive control.

McEwen devised the now well-known copper-sulphate-nicotine method for the control of nematode parasites which later became so widely employed, but it is his work on contagious bovine abortion which has attracted the keenest attention throughout the world. His studies in immunity led him to the production of the vaccine now familiarly known as "forty-five twenty," and after McEwen had carried out very extensive field trials the Ministry of Agriculture announced last June that they had accepted this vaccine as one of the two official contagious abortion vaccines for issue in the national scheme for the control of the disease.

The present organisation at Wye is in itself a remarkable example of the progress that can be achieved from the most meagre beginnings by one possessing the qualities of resource, initiative and perseverance, and in the fuller facilities that are now available to Dr. McEwen in joining Dr. Russell Greig at Moredun his field of opportunities should be even further enlarged. The good wishes of the profession, both at home and overseas, go with him.

. . . . . .

Colonial Veterinary Service Appointments.—The appointments are announced of Mr. C. C. B. Brown, M.R.C.V.S., as Veterinary Officer, Tanganyika Territory, and of Mr. L. C. Stones, M.R.C.V.S., as Veterinary Officer, Gold Coast.

. . . . . .

Births.—Baird.—On October 30th, at Liverpool, to Leonora, wife of J. C. Baird, a son.

Lamont.—On November 7th, to Gladys, wife of Alasdair A. Lamont, B.Sc., M.R.C.V.S. (now serving with the R.A.F.), of Davenport Park, Stockport, a daughter.

Makinson.—On November 11th, 1942, at Dunkeld Nursing Home, Hartford, Northwich, Cheshire, to Jean (*née* Kemp), wife of J. B. Makinson, M.R.C.V.S., a daughter.

Stewart.—On November 5th, 1942, at "The Cottage," Ashton, Chester, to Joan (Dowlen, M.R.C.V.S.), wife of Charles A. Stewart, M.R.C.V.S., a son—Charles Cosmo.

. . . . . .

R.C.V.S. Fellowship Diploma.—At the last quarterly meeting of the Council of the Royal College of Veterinary Surgeons, the proceedings of which will be recorded in the supplement to be issued with next week's number of *The Veterinary Record*, it was agreed, on the recommendation of the Examination Committee, that the Fellowship Diploma be awarded to Mr. William Tweed, M.R.C.V.S., D.V.S.M. Mr. Tweed is seconded by the Ministry of Agriculture to the Ministry of Food as Advisory Officer, and the subject of his successful thesis was "The use and effect of mechanically-operated stunning instruments in the slaughter of animals for food."

* * * * *

Erratum.—Caption Fig. 22, "Some affections of the hip joint in the dog," C. Formston and G. C. Knight (plate facing p. 485, *V.R.*, **54**, 46) *for* "irradiation" *read* "reduction."

R.C.V.S. OBITUARY

Williams, Richard Wynne, Hendre, Dolgelley, Merionethshire, Capt. late R.A.V.C. (T.A.). Graduated London, July 20th, 1912. Died November 6th, 1942; aged 54 years.

Mr. R. Wynne Williams, M.R.C.V.S.

Mr. R. Wynne Williams carried on an extensive practice in Merioneth and adjoining counties. He was recognised as an authority on Welsh black cattle, and had served as judge in that section at agricultural shows throughout the Principality. During recent years he had worked in conjunction with the Ministry of Agriculture upon the attested herds schemes in Merionethshire. He was a member of the Dolgelley Urban District Council.

* * * * *

R.C.V.S. ANIMAL MANAGEMENT EXAMINATION

List of Successful Candidates

(*Continued from page* 486.)

Liverpool

Alun-Jones, W. S.
Beaumont, W.
Edwards, H.
Highet, D. R.
Mills, Miss S.
Smith, A. N.
Williams, C. P.

(*To be concluded*)

* * * * *

ROYAL ARMY VETERINARY CORPS

The following announcement is made in the issue of *The London Gazette* dated November 10th, 1942: to be Lts.: Frederick Harry Orr (248007), October 4th, 1942; John Herbert Jarvis (248665), October 15th, 1942.

* * * * *

ROYAL AGRICULTURAL SOCIETY OF ENGLAND

At meetings of the Executive Committee and of the Council of the Royal Agricultural Society of England recently held at 16, Bedford Square, London, Lord Mildmay of Flete, the President, gave a résumé of the work carried out by the Executive Committee during the past three years.

He said the whole of the activities of the Society, with the single exception of the annual show, had so far been carried on without interruption during the war. The Executive Committee was in constant touch with the Ministry of Agriculture on all matters affecting the industry. The journal had been published each year and he hoped it would continue throughout the war. The membership had decreased since 1939 as so many members took an interest in the show only, but those members who had resigned on this ground had all promised to rejoin when shows could be held again. At present the membership stood at about 7,500.

Sir Arthur Hazlerigg, Chairman of the Finance Committee, said the Society had been able to pay its way, to make grants for research work, and to continue all its other activities. Arrangements had been made for the examination for the national diploma in agriculture, or a group of subjects in the syllabus, to be taken by prisoners of war without fee. Steps would be taken to see that the standard of the diploma was not lessened.

The President proposed that honorary membership of the Society, coupled with the Society's gold medal, should be bestowed upon Sir George Courthope, M.P.

Lord Athlone and Lord Plymouth were elected Trustees, and the Duke of Norfolk and Lord Radnor were invited to become Vice-Presidents.

* * * * *

HIGHLAND AND AGRICULTURAL SOCIETY

Foot-and-Mouth Disease: Danger from Swill

At a recent meeting the directors of the Highland and Agricultural Society discussed the incidence of foot-and-mouth disease in Scotland, and the feeding of swill to livestock.

A communication was received from the Scottish Shorthorn Breeders' Association pointing out that they had communicated with the Ministry of Agriculture on the question. They remarked that there was obviously a close connection between some of the outbreaks and the feeding of swill collected at Army depots and elsewhere. It was suggested that the swill should be boiled before it was distributed to pig feeders.

The directors of the Society agreed to support the representation of the Ministry and suggested that local authorities should be responsible for seeing that all swill was properly treated before distribution.

Artificial Insemination

It was reported that the Chairman had been asked to represent the Board on the Committee on artificial insemination set up by the Agricultural Improvement Council for Scotland.

The Chairman said this was a subject in which he had always been deeply interested, and he had been asked to act as Chairman of this Committee.

Sir Joshua Ross-Taylor, Mungoswalls, Duns, said he did not know how the matter was likely to be received by breeders. Personally, he felt it would be unfortunate for Britain if it became general. His view was that if their scientific friends got artificial insemination thoroughly established in the country there would be no incentive for the ordinary man to carry on breeding, the breeding industry in Scotland would be very badly hit, and the export trade would go to the wall.

Mr. J. E. Kerr, of Harviestoun, Dollar, and Mr. R. S. M'William, Garguston, Ross-shire, supported Sir Joshua's views, and spoke of the difficulties of registration.

Mr. R. Scott Aiton, Legerwood, Earlston, said that while he agreed that this matter had a great future before it, he did not know that they were ready for such revolutionary reform. By the end of the war the Continent would be depleted of all forms of livestock.

Mr. J. W. Alexander, Moffat, said that this system would enable the small owner to improve his stock.

Sir Joshua Ross-Taylor said he was not against the introduction of artificial insemination, which no one could stop, but he was against the widespread use of it throughout the country. The export trade in pedigree stock was the one asset Britain had in agricultural production, and if artificial insemination became widespread that business would cease altogether.

The Chairman (Major Brebner) said he was glad to hear those views, and he could now go forward with an open mind.

Control of Animal Diseases

Reporting on a conference on the control of animal diseases, convened by the N.F.U. and Chamber of Agriculture, the Chairman said the unfortunate thing about the scheme was that it was not compulsory, and he was afraid that until they got compulsion in dealing with four specified diseases they would not go a great distance in stamping them out. Still, it was a move in the right direction.

* * * * *

LEGAL NOTES

White Scour: Diseased Cattle Offered for Sale.—The *Oban Times* reports that at Oban recently a fine of £5, with the option of 20 days' imprisonment, was imposed on Donald McMillan, estate worker, Ardrishaig, for omitting to apply remedial treatment to five cross quey heifer calves inflicted with "white scour," whereby unnecessary suffering was caused; and for cruelly ill-treating the animals by exposing them for sale while infected with the disease.

The Fiscal said the respondent bought the cattle at Oban and had them conveyed to Ardrishaig. When the animals arrived they were suffering from the disease mentioned in the complaint. Respondent worked among animals and must have known they were suffering from the disease. Despite that knowledge he sent the animals to a sale. When they arrived at the market it was seen immediately that they were diseased; indeed, one of the animals was so bad that it could not stand and had to be destroyed.

A veterinary surgeon was called in and he reported that the animals were not in a fit state to be exposed for sale.

Handling animals regularly as he did, respondent must have been aware of the condition of the calves. He (the Fiscal) did not think respondent was a regular dealer in cattle. He was an estate worker and bought as a speculation.

* * * * *

TRAMP SHIPS AS MEAT CARRIERS

The Times, through its Shipping Correspondent, records that an interesting experiment has just been made in British shipbuilding and marine engineering. Vessels with large refrigerated space for the transport of meat and other foodstuffs are usually fast liners, for whose services in war-time there are many demands apart from the use of their refrigerating equipment. Liners of this type take much longer to build than tramps or ordinary cargo ships of simple design, and even when licences are granted for the construction of liners to carry refrigerated cargoes, there can be no guarantee that before commissioning the ships will not be required for other more urgent war purposes.

It thus happened recently that there was more refrigerating machinery available than liners of the type in which it would normally be fitted. As a matter of expediency, therefore, it was decided to fit refrigerated machinery into some of the ordinary

cargo ships of 10,000 deadweight which were under construction. The most formidable part of the work of converting the ships from carriers of cargo in bulk to meat-carrying ships was to fit the refrigerating installation into space which would have been occupied by ordinary holds. By employing the tramp ships for this special purpose they were given a carrying capacity of from 250,000 to 300,000 cubic ft. of refrigerated produce. This compares with from 400,000 to 500,000 cubic ft. as the refrigerated space of a large modern liner specially built for the transport of meat.

The first of the vessels which has been so adapted has just successfully completed her maiden round voyage.

* * * * *

NEW VITAMINS

The vitamin alphabet continues to grow as workers in this field obtain evidence of the existence of more and more of these essential compounds. Great, indeed, have been the advances since the term "accessory food factor" was first used by Sir Frederick Gowland Hopkins to describe a somewhat vague substance present in milk and butter-fat which he proved to be necessary for the growth and health of rats that would not thrive on a diet composed of the theoretical amounts of carbohydrates, fats, proteins, mineral salts and water. Many of the accessory food factors foreshadowed by earlier workers in the science of nutrition have been identified as well-known chemical substances, although their exact role in the diet has only recently been discovered.

The term "vitamin" implies a substance which is essential to life, and judged by this criterion many of the substances now described as vitamins would have been better described by the original term "accessory food factor"; for many of the so-called "vitamins" have little more than a hypothetical effect on the human subject. This does not mean that we should ignore the fact that all the known vitamins have passed through a period of similar obscurity. On the other hand, there is need for restraint in the too ready attempt to apply to the human subject results from purely animal experiments. It is not many months since some sections of the Press in this country gave publicity to reports from American sources that the anti-grey hair factor for rats had been identified as *p*-aminobenzoic acid, with the result that chemists all over the country received many enquiries for tablets of this substance.—*Pharm. J.*

* * * * *

FOSTERING OF BULL CALVES

The Secretary of State for Scotland has made an Order entitled the Fostering of Bull Calves (Scotland) Order 1942, under the Defence (General) Regulations, regulating the fostering of bull calves. The restrictions imposed by the Order are in accordance with the recommendations of the principal Scottish cattle breed societies, who were invited to submit proposals for curtailing the practice during the war in the interests of the national milk supply. The Order, which will come into force on December 1st, 1942, prohibits:—

(*a*) A calf being suckled by a cow or fed with liquid cows' milk after it reaches the age of 10 months;

(*b*) A calf being suckled by more than one cow at any time;

(*c*) The foster cow of a calf accompanying the calf to any place where cattle sales are held.

With regard to (*b*) the Order provides that this cow may be either the calf's dam or a foster cow, and allows the substitution of the latter for the dam to be made at the discretion of the owner of the calf. In the event, however, of the foster cow being certified by a veterinary surgeon to be unfit to suckle the calf, another foster cow may be substituted.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

* * * * *

INFERTILITY IN CATTLE

Sir,—May I draw attention to what I regard as an unfortunate tendency in the treatment of temporary infertility in cows, namely hormone therapy, which looks like becoming popular at the present time. It is important to decide (1) whether hormone therapy does in fact procure earlier conception, and (2) whether such is justified in the best interests of the animal or nation depending on the animal.

I have seen a report of only one *ad hoc* experiment on natural cases of temporary infertility and that was recently carried out at the Cornell University Agricultural Experiment Station, which borrowed slow-breeder cows from local farmers, kept them quiet and on moderate diet, treated some with anterior pituitary hormone, others with oestradiol benzoate and kept others as controls. Within six months a greater proportion of the controls had conceived than of the treated animals. The reporter concludes that hormone therapy is contraindicated in such cases.

I consider that the current interest in hormones, recently given such impetus by the possibility of their synthesis, is leading us astray in the problem of infertility of ovarian origin. It tends to distract attention from the all-important nutritional aspect, as witness the total lack of reference to nutrition in the report of the N.V.M.A. meeting on stilboestrol of December 11th last (*Vet. Rec.* 1942, No. 10). Surely heifers with hypoplastic genitalia are *ipso facto* living witnesses of a bad nutritional upbringing, and surely the first treatment should be directed towards completing their bodily development by good feeding plus elimination of parasites, etc., interfering with food utilisation. I consider it shocking to try to force such animals into calf by injecting hormones.

As with heifers so with cows; I suggest that cows which remain anoestrous after calving are doing their best to obtain a period of recuperation after their labours. They need an adequate period of rest and feeding up. The above-quoted research concludes in this sense. I suggest further that similar cows which show heat but fail to hold to the bull may yet not be truly fertile, because their ova are for the time being qualitatively inferior and non-viable. That the analogy holds good in the male has been proved in the last few years.

Sex hormone therapy I hold to be unphysiological and likely to be harmful. Unlike almost all other forms of treatment, such as are directed against noxious influences against the body, hormone stimulation therapy acts instead by increasing the stress on the tissues, which are showing themselves unfit to stand it. The spurring of a tired horse comes to mind in analogy.

Modern hectic times furnish many examples in many walks of life of attempts to get quick results—followed by disaster. Attempts to increase and speed up the calf crop can easily come into the same category and the stress of war militates to the same end, but let us not forget the lesson of the rape of the land in America and elsewhere. We veterinarians of all people are now claiming it as our sphere to care for the health of the country's livestock, and in doing this we should obviously take the long view and not allow any treatment of animals calculated to get quick results at the expense of health and long life. We ought to know that Nature cannot be hurried with impunity!

I am, Sir,
Your obedient servant,

West Byfleet. J. Edwards.

* * * * *

THE LOCAL APPLICATION OF SULPHONAMIDES

Sir,—As a clinician very interested in the local application of the sulphonamides in veterinary practice, may I congratulate Mr. A. J. MacLennan, B.Sc., M.R.C.V.S., on his article on this subject which is published in the current issue of *The Veterinary Record*.

I recently received a very outspoken but highly appreciated criticism of a recently published article of my own (*Vet. Rec.*, May 7th, 1942) on this subject from Mr. D. G. Ardley, of Messrs. May & Baker, Ltd., and as Mr. MacLennan appears to be guilty of a similar inaccuracy over the sulphonamides as myself, may I pass on such criticism for the enlightenment of the profession in general.

It would appear that most articles by clinicians in British journals dealing both with human and veterinary medicine or surgery contain many inaccuracies over sulphonamides, especially with regard to nomenclature, comparing unfavourably in these respects with corresponding American publications.

Mr. MacLennan, like myself, makes the common error of using the term "sulphonamide" as if it were the name of a substance; which it is not. Thus his sentence "As I have been more interested in the antiseptic action of the pure drug itself, most of my remarks will be concerned with the use of powdered sulphonamide" is erroneous. Presumably he means "one of the sulphonamides in a powdered form," and, if necessary, should specify the actual preparation, *i.e.*, sulphanilamide, sulphathiazole, sulphapyridine, etc., as the case may be. This would appear to be very important in that the value of the local application of these drugs may vary considerably in their effect on local infections where bacterial contaminations of similar types are present.

It is also interesting to note that whereas in oral or parenteral administration of a sulphonamide the concentration secured in the body tissues is bacteriostatic, the concentration which occurs in a

wound fluid after the implantation of a sulphonamide in powder form is bactericidal, provided pus or other interfering substances are not too much in evidence. This would appear a point in favour of the local application of a sulphonamide over oral or parenteral administration in certain types of local bacterial contamination which has not been previously emphasised.

In conclusion, may I express amazement at the apparent lack of interest of the profession (at least as shown by published case reports) in this subject. I trust that Mr. MacLennan's article will do much to stimulate the interest of the clinician in this very important method of treatment.

Yours faithfully,
H. C. Swann.

London Road,
King's Lynn.
November 10th, 1942.

* * * * *

BOVINE MASTITIS

Sir,—I was interested in Mr. Campbell's letter and that of Mr. Roach, and think that our experience might be of interest to other practitioners.

Our experience with *C. pyogenes* infection seems to coincide with that of the above-mentioned gentlemen. We concentrate on saving the animal's life and have certainly found that *C. pyogenes* toxoid seems to alleviate constitutional symptoms.

Of staphylococcus toxoid we have had little experience except when we participated in an experiment to try to clear up staphylococcal infection in seven apparently healthy udders. Toxoid was used in varying doses, but appeared to succeed only in one case.

We have used udder irrigation for several years now, using entozon, acriflavine and euflavine in turn in each case with very varied results: speaking generally, I should say with some success in 20 per cent. of cases where the causal organism was known to be a streptococcus. At first when we were dealing with streptococci we used to tell the owner that udder irrigation might bring about improvement. We then came to believe that best results were likely to be obtained when dealing with *Str. agalactiae* and when a laboratory report specified agalactiae we gave the owner a fairly hopeful prognosis. Recently, however, we have come to the conclusion that results when dealing with agalactiae can be as disappointing as with any other. This may be accounted for by what the bacteriologists are now suggesting, *viz.*, that there are several strains of agalactiae, only some of which respond to treatment. We have also used sulphonamide E.O.S. and think it no better than acriflavine though very, very much more expensive.

In many—most, in fact—of the cases which do seem to respond to udder irrigation, when the cow is in full milk, the milk flow in the particular quarter is so reduced in quantity as to be of little value.

We have had fairly consistent success following the use of udder irrigation in dry cows affected with streptococcus.

We seem to see cures effected frequently in cases of streptococcal mastitis where our efforts have failed, by the simple expedient of putting a strong calf to the cow for a period. We can only conclude that the milk does not taste as badly as its appearance would lead one to believe.

It also leads us to the conclusion that the time-honoured treatment of frequent rubbing and stripping has still a lot to be said for it.

Yours faithfully,
Horace Bell.

Veterinary Infirmary,
67, Grenfell Road,
Maidenhead,
November 7th, 1942.

* * * * *

GIZZARD EROSION IN CHICKENS

Sir,—The reference to this condition in the list on page 468 of the issue of October 31st appears to leave some doubt as to the cause, but observation of outbreaks in this area points to a dietary deficiency, although no controlled trials have been carried out. As some of the foodstuffs mentioned as containing the preventive factor may be difficult to obtain, and others not easy to feed to chickens, it may be of some practical interest to record that for some years past it has been my custom when reporting on the condition to recommend a ration of oatmeal and skim milk with a supplement of steamed bone flour and cod-liver oil, apparently with satisfactory results.

Yours faithfully,
John C. Grant.

The North of Scotland College of Agriculture,
Veterinary Department,
Marischal College,
Aberdeen.
November 11th, 1942.

A NEW TYPE VAGINOSCOPE

Sir,—In your issue of November 7th, on page 475, you describe a new type vaginoscope, Oliver G. Jones, M.R.C.V.S.

This instrument is made by us and we regret to say that the article in question was evidently sent to you for publication by Mr. Jones, without first being submitted to us; as a result it is full of inaccuracies.

(1) The instrument is known as "Coldlite" and not "Curvlite."

(2) The Patent Rights are held by ourselves and not by Messrs. I.C.I., the Patent being on the instrument itself and not on the material from which it is made; there are patents on the manufacture of the material itself which are owned by I.C.I., but they have no bearing in this particular case.

(3) The instrument is made in two sizes, *i.e.*, 14 in. long with a bore of 1½ in., and 14 in. long with a bore of 1¼ in., the larger one for cows and the smaller one for heifers.

(4) The light source is obtained from a special lamp based in a reflector, which is not a flash lamp bulb as described, but a lamp specially built for the purpose, and the power needed for illumination is derived either from a transformer giving 12 volts or from a large battery box giving approximately 13 volts.

(5) The instrument is fitted with a metal obturator to facilitate ease of introduction.

We would be glad if you would be kind enough to draw attention to these points in your next issue, as the instrument in question has been adopted by the various Ministries concerned and will shortly be on the market, and the present article, to say the least of it, is most misleading.

We fully realise that the fault does not lie with you, but it is essential, in view of the importance of this instrument, that a correct description is given. A folder on the use of this instrument will shortly be published by us; incidentally, supplies of both sizes will be available for distribution before the end of the year.

May we also draw your attention to the fact that our address is not Seymour Street but 63, Weymouth Street, W.1.

We are, dear Sir,
Yours faithfully,
Vann Bros., Ltd.,
C. F. Rapaport, *Director*.

63, Weymouth Street,
London, W.1.
November 14th, 1942.

* * * * *

The Lord High Chancellor has appointed a committee to consider a recommendation of the Scott Committee that registration of title of land should be compulsory throughout England and Wales.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Parasitic Mange*	Sheep Scab	Swine Fever
Oct. 16th to 31st, 1942	30	21	—	30	27
Corresponding period in—					
1941 ...	11	—	1	6	12
1940 ...	31	2	—	11	268
1939 ...	23	9	—	36	373
Total Jan. 1st to Oct. 31, 1942	292	552	26	168	400
Corresponding period in—					
1941 ...	354	259	17	160	996
1940 ...	470	35	15	141	4,211
1939 ...	625	82	32	214	2,559

Note.—The figures for the current year are approximate only.
*Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at 31st October, 1942, was as follows:—

England	Wales	Scotland	Total (Great Britain)
3,910	8,920	3,392	16,222